RECORD

## Iregin 34417

Collection and Field Note Mook

No. 35

(March 10, 1952 - December 16, 1952)

(34417 - 34496) (No. 1 to 46, S. L. Gressitt Coll.)

(Continued from Book No. 32) Page MARSHALL ISLANDS Ujac atoll, Bik Islat, Wile (Erlia) Islat commisse, Jaial rakesid , Jaial Bokerok lalet, has lalet, Book lalet, Eneland Lalet, Ujee Lalet, wojie ES-I ...... Book Islet .... I-25 Ujae Islet ..... 194427-14421 .... Jele Isle SI Kwajalain Atoli, Kwajalain Islat, 34422 132-33 General Memerka ..... sairsmen Intened Wotho Atoll, Wotho Islet, 34423-34420 Enestik Islet ..... 34425-34426 Ombelim Lalet ...... 34430 .... 60-61

Biken Islet ..... 34434 .... 63-58 Kabben Talet ..... 34435-34436 64-67 Encobraic Lelet..... 34437-34443 Encharbar Lalet ...... 72-73 or a service of the s ..... Spiel Mandosos Bolcanagiok ...... ..... valad ontowns and the Bokanaetek ...... Part Lord Jenes Later .... Joiel wame Lord V8--89 

62-63

SEARS-IEAR ..... Join meddel

Ombelin Inlut donners ... 34433 ....

METLAND, June Aroudet Dr. 59400 annixious Vgortwage Isletonous 1-27 ------

## Collection and Field Note Book

## No. 33

(March 10, 1952 - December 16, 1952)

(34417 - 34496) - (No. 1 to 46, G. L. Gressitt Coll.) -

(Continued from Book No. 32)	Page No.
MARSHALL ISLANDS <u>Ujae Atoll</u> , Bik Islet, Alle (Erlia)  Islet, Bikenkar Islet, Enelamoj Islet,  Bokerok Islet, Rua Islet, Bock Islet,  Enelamoj Islet, Ujae Islet, Wojia	
Islet, Bock Islet	1-23
Ujae Islet 34417-34421	24-31
Kwajalein Atoll, Kwajalein Islet, 34422	32-33
General Remarks	34-50
Wotho Atolt, Wotho Islet, 34423-34424 Enejelto Islet	56-57 58 58 60-61 62-63 62-63 62-63 64-67 68-71 72-73 72-76 77-81 82-85 85-86 86-87

	Page No.
MARSHALL ISLANDS  Wotho Atoll, Enejelto Islet	88-89 90-98 99-101 102-108
Jaboero Islet, Bikar Islet  Birds  Pokak (Taongi Atoll, birds  Kwajalein Atoll	115 116-120 121
MARIANAS ISLANDS  Guam  Uracas	122 <b>-</b> 125 125
VOLCANO ISLAND Iwo Jima34444-34445	126-127
JAPAN Chichibu Range	128-129
WAKE ISLAND ATOLL continued Wake Islet 34446-34483	130-135 d 142-148 136-143 149-152
VIRGINIA, Fairfax 34484-34489 " "34491-34496  MARYLAND, Anne Arundel Co. 34490  KAYARGEL ATOLL (G.L. Gressitt Coll.)	156-157 160-161 158-159
Ngariungs Islet 1-27  Ngajaugel Islet28-43b  PALAU, Auluptagel Island near Korar 44-46 .	166-167 168-169 170-171

begin 34417 end 34496

7. R. Forsberg

Collection brook #33

+ field clata



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1952 marshall Is. Ujae atall 1 ( Continued from Book no. 32) nt yllus. March 10 - Bar somewhat north of Bik Islet - gravel ban submerged 20, les at the high tide not held, as frai as can be seen from lagron, by any beach noch a other stable tinmaterial feems to ely, refresent a balance between the strength resof the lagon waves re and that of the season lage waves weakened by their rey passage across a ng wide neef flat at almost sage high tide their were arie small breakers on forth side of it. at rather low tide the bar was well exposed eez, and hundreds of moddies end, were holding a conference zzernla mit. Lugaria ravel teels m lis le

you atall 1952 Marshall 9s. seedlings of the derninant March 10 - ally (Erlie) Islet trees, much more allofphyllus. three gratches of coconuts, One Terminalia samoensis one near south lagoon tree is about 10 m. tall, point two near center with main branches of islet. Center of islet occupied by Pisonia grove in high mall grove of four large trees from near trase each 3 dm. thich. Lagron side rather sandy, with one centinand traff-dozen in so nous bridge along beach, smaller ones, ofen beneath a second back of it with only a few seathered interrupted by a defres-Morinda and allofelyllus sing in middle. The saplings, almost n. end of this second ridge no ground cover - a few constrained with a piece scattered small plant, of lagoonward diffing of Thuring, Polypodium, beach - rock on the passage and I fremoen tuba (seedlings). beach. The ridges is are ground mostly bare but sparse visual and center covered by a larger of 2-6" of peat. front, with asspatch ( see 1 . 186 - 7 of Book 32 for of young coronut trees, description of this, sample # 110). 5-4 m. tall in so south end, This grove is on a very one or two on monty, messerslight rise in the ground. schmidig and Leavorla furounding it is mixed dominant, much open forest of Pisonia, Vandanus, Wedgetie thoppings + tangled in Andergrowth. Terminalia and two of the patches of commuts. Undergrowth and beach except for se gravel book on lagron end, a steel ground cover similar boulder beach up from to that in Pisonia grove but reef-rock on top of this a little more dense, same a beach and weals composition but with addition ridge of pebble to cobble of Boerhavia tetrandra and the

1952 marshall 9s. Mar atop and extending in both size todas stones, along directions. absolutely this passage a Bent frest of Messendindig no undergrowth or and l'isonia, interripted ground cover. Canopy by patches of fearola very sparse at this serub and with scattered Hermit crabz very messerschmidig trees abundant on this islet, taller than the serub. Leaward after of in day-time biding in and under rotter islet and outer 50 m. a flat of broken coral coconut logs, track, at height of passage etr. Large series collected is rubble getting fine, (Jans 13, 14, 15) to see how many species represented, toward the lagron along Color patterns vary the north passage is a considerably. Oflange colle ridge, what at red species, color valies seaward end, stronger from scarlet to brick-red lagronward. The outer to brownish - red. half of islet, except in sery center is a spary serub a serub forest J-9 m. high of Masserschmidia, fearnola, with wedeling tangled in it and in openings, ground cover of Boehhavia and Polypodium. Lagrenward tralf of noth passage beach lined by almost pure stand of Cordia, with some Visonia, between communt patch and beach

Marshall Is. March 9 - Biginnigar Islet a flat triangle of sand and fring rubble coarser toward the windward periphery where there is a boulder beach and on the southeast side at least, & thickly scattered boulder along the edge. Center rather sandy. Leeward beach a broad sandy beach prolonged into two honer at the enner, these curring to leeward. Vegetation a sparse africally and quettards, beenning lower to windward. Much ofpen ground between bushes to windward this covered by Lepturis, Cassytha, 7 livingetta, Boerhavia tetrandra, Tolypodium. Through the central portion are scattered excount trees, these very yellow and unhealthy-looking, some of them dead! Leewald corners, on photo

almost base, now quite well vegetated with Leaevoka and a few Messerschmidia, some of the latter of quird size (3 m. ±).

Judging by the photos and present observations the island is adding sand mits inner side and the sand home at the corners change shape very rapidly. (Chief Chti's grather told Mas Neil that during The strong trade- winder ) strongly inward while during June to feptember they straighten out parallel with beach. This should be checked with photos of M. I. project)

1952 marshall Is. vijne atoll Mar. 9 - Englamets Islet could be called dominant. Locally in north On south halft of leeward an half, near center, reef flat are scattered large boulders. (dark trees in M1-38-25, 26) are patches of seedy va. greater part of island planted to cosmuts of headfruit. no undergrowth a ground cover her fairly closely spaced, mostly healthy looking, except scattering of breadfuit except on one spot toward seedlings up to 3-4 dm, tell. Here and there patches of seaward side about 1/4 from mixed frest Pisaniganus, and Ochrosia, Intriquete. noty end, where the trees are yellow, some have died and, especially toward south even the seedlings are very end, patches of achinosing yellow (shows as a light shot on photo M1-38-25). frest, some of these, toward windward windward toil generally sand & beach wenter fellow white on fund the trees wearbent fine to loam, locally give mibble, gray to gray brown. south of light shot on photo M138-25 are Pisaria. cleared out recently of Tumpetta, Fimbristylis, Leeward beach is sand and fine gravel at top Polypodium, etc. Large areas is an interrupted narrow belt of keaevola semb. with mat of Wedding Beach around north 1-2 m. thich. Others with Moninda, Soulamea, etc. west wast very broad, sandy, no significant One patch of Intria near seaward ridge. around Teneral second story of generally. an northeast side a sand ndge is well developed but tapers off southward. Pandanus, scattered to quite frequent, locally This coast lined with broad belt of tall serul in plantation Pandanus a semb fruit of Acaevola

1952 marshall fr. Ujaeatoll Birds seen on Ujas atol. Brown booky - "halo" about 30 deen in evening (Mar. 1) returning Occording to chief Enti, of Porkaling Jolet all sea- birds are eaten, is not ester, as it est rats. after days frishing. and seen on Ugas ). (amou) one on Biginneyas Mac Neil reports seeing a moddy (which me not determined ) pick up a Ked-fronted books nesitid smail from ney outer beachof Rus ). fly high in air, drofit, Gollowing it down, so its n Feb. 23. shell broke in rocks and it could be eater. The accounts for numerous freshly broken neutid Common modely - pijuali" shells on roder (sample # 111 gran Book 1. F. coll. mar neile). at least occasionally seen on all islets, Frigate brids (Fregatly mina) some seen gathering alange colony of at nesting braterial on least 75 birds live on in forest on Book 1.; hundrede seen on Pohairuk J. quite a few on Rua I. tethree nests Pokainh Islet south of Book Channel, where they may be seen in Terminalis tree on nosting in some seaward side. The next, numbers in l'isonia may be distinguished trees almost any time from those of the white-capped noddy by being as much at sunset they are soaring in great number over the channel. a few as twice as large of of them have no white looser construction, made at all, either beneath or on largely of twigs, not

Ugae atoll 15 Many were seen flying about Englaming I slet, and they were abundant on ally I. Here one was nesting in a big crotch of a Pisonia tree about 5 m. above the ground. Here The next in this frond definersed crotily consisted of very little material a fewtwigs and leaves not at all typicastin On Ujas islet only six moddie seen. This islet is where the people are concentrated. (mar. 13)

White-capped modelyteliting abundantly and gredariously and in Pisania trees on Brock and Pokainik islets, and to be seen in bundreds plying around there islets young around there islets young natives collect these young

1952 Marshall Is. Ujae atolf 16 to eat. They built a fairy tern "mejan" \* fring at trase of a Seen occasionally huge Pismis loaded at any how of thyday with nexts. It burned carrying on small all day and frinally fresh in their beaks. one half of the tree fell. Many in trees and at least to sto frive a flying overhead on six dozen young Bock, one young me were collected. Called in prinfeather stage, "nemajelij kon". Aeb. 19 a dozen nesting in Hundreds flying overhead on Potrainis. close group in Pisming Hundreds also seen and Terminalia trees, on Rua, Feb. 23 six eggs Man. 10. seen three on messen on Rua 1. Teb. 23. The schmidia, three on of Visonia, one frohen one nests may be distinguished under Pisonia two from those of common young almost feathered noddy to because they are smaller more andy occasionally compact, built mostly seen on Elegin Islet, rate a lying of leaver (Pisonia and Kundreds seen over Bils. Theseschmidia, badly many on the Englamy. stained with white abundant on ally grans. Usually found Islet one mesting on lin groups. with egg on Pisonia branch at about 8 m. when it approached. One a over lagora mea. Ebejes with fish in mouth out flew and shuded six common moddies that were pursuing it.

1952 marshall 9. 18 Mjor Islet 19 Black-naped tern locating them. They one seen flying over south end of Boch 9. Feb 19. were exactly as described above. as long as ? Seven on Rua, on many was in vicidity even all during time ) ate my south sand-shit of islet "Tive nexts here bunch sitting on work on bare gravel freat at base of sand spit just above high tide level. 50 away, the four birds protested mornily, "yak yak yak" gif, i eep ieff" "aa" "yak, yak, Eggs laid on absolutely blane gravel, in one clutch, I in other very well concealed by resemblance to surrundings. Crested tern. "ke'er" Eggs identical in size shape, color and marking ( name tied to this specie with those of grain allanby description by nations only, as no bring seen gray ground chert with scattered frommish when native was present). møttling, 79 mm. long. On Mar. 8, two seen over four seen on inner south lagoon Ebejut. On mar. 9, three sekan west sand sput of Dog ally Islet Mr. 10. on Biginniga and one clutch of two eggs one over lagron in north laid in small collection bery well ancealed, just about On mar. 10 eight wery well amcealed, seen over seaward only the frantis protects reef flat, ally I slix. of the birds calling my On Mar. 13, one seen over lagron near windwarf attention to the eggs even though I had been neef about 2 mi. n. of walking around them Ujae . for some minute, tooled for them carefully before

22 1952 Marshall Is.

Bristle-thighed curlew"korwala"

Considerable variation

in amount of chestruit

in plumage

On Brok Islet 1-7 & be

seen almost any time in

different sides of islet,

probably same ones, one

seen in worky spening in

Leaevola schub.

4-5 on Rua Islet, seen

several times.

2 seen on seaward neef of

3 bestie ),

rbeja ).

Lon Wortjin (with plover and turnstones).

east side of Englamy? I.

5 seen together on bouth
passage beach, Biginnigar!.

1 seen with plovers, three
seen sapports together, on
ally I.

seen on beach filled with beach filled with beach belong to this bird.

Note when flying "hiwe, hiwe,

1952 marshall &. ujae atoll 25 24 March 13 - Ujal Islet artocarpus altilis (Park.) Forsto. tree 15 m, tall, 5 dm thick buttressed at base; common mixed with leaves variable in coronats in interior outline. of islet amall tree, sterile. Premna obtunifolia R. Br. one tree seen in village small tree 5 m. tall; 19 allophyllus timmensiso.c.) Blume flower white. common in scrub. along passage ( also in plantation) on earal boulder in 4 21 Pseuderanthernum atropupureum shoul , m. tall; leave, (Mull.) Briley dark bronze- pringle. cultivated in village flowers purplish from michly dotted with red. #112 - drift seed from ailuk Marshallese wond gn Tridarna gregas - "kalouur" Vial # 177 - ants from large colony in rotten coronit trunk, Was Islet, Mar. 13. Sting painfully. also a small milliped from same coconul trunk Vial # 134 - ants and associated scale mosts - scales of france and calys of cornuts ants running beetle blying . tee, tending them.

ujue atole 1952 morshall Is 26 Mar. 13 - Ujar Islet. enterially m On seaward side entir beach is of pebble a cobble. steep its crest forming a small seaward ridge. This beach and ridge hook around on both ends, to half a two thirds the width of the relet. Back of the beach is a very broad low ridge gradually and unevenly fading off inward of to Plantation small nubble and soil on butley with about 150 - vod on. in from mixed with beach. The remainder of eram, weelly) the islet has an unevenly flat surface of fine mobile a rubble and gray a blacked loan, mixed, this verting on rubble a few inches Hany between coarmany for rubale ridge The island is worthy planted to commute, mixed here and there with breadfruit. very locally with Pismig. pebble-cobble beach The second story is of restlevel l'andanus, treally quettody, with lapley as quite common beneath forme bananas. but there looking markedly yellow, much more so than when we were here a month ins ver. ago. allophyllus and mounda,

ujae attle

27

DEPAR LA CONTROL OF THE CONTROL OF T

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

especially mounds, and also common tocally mats of Wedeling of a meter day occur in the plantation. Degree of cleaningout the brush varies from place of place. young commuts are very thick in places. Vigna, 50 Polyprodium, Feptunes, Unava, etc. form ground ever, any me of which may be dominant locally the Vigna especially so netwiter edge of islet. island lines with a narrow along the west passage brack this is composed of scaevols, and quettandy, with some merrenchinidia and Messerchmidia and morinda, with a little Terminalia, allophylly and Pandanus, and, away from beach, Pissonia. ground over her of teptures a tigna a a misture of both or with Trumfetta and thurses. from Dedeling tangled in this belt.

ago. allophyllus and morinda,

Ujar atoll 29 1952 Marshall 9s. 28 In the outer bedge of around the west and the plantation beaevola and horning around the is a common small. western part of the seaward as beach is a conved. On the southeast outward dipping bed of beach. coast the nubble changes sett congramente, mud, to large boulder and eroded and fritted ever the rute edge of the discontinuous in place plantation gives way 10-20 m. out from present beach to Pisonia - quettarda garning a low cuesta Possibly forest with a few indicates a former shore. scattered everbuts. Many seedling comuts The western end of the in undergrowth which securoud beach is coarse is a tangled mass gravel with a very brad of Wedelia and Spornoea (150 m. 19) rubble sidge behinget. The outer edge of this, for a little further varying width, is cover along this is again Scrub, with a little quettails replaced by skint or serub forest, mostly and Messerchmidia Scaenola. at edge Inside This The rest of the mixed with quettanda with ridely in cleaned and and messersellmidig planted to comute. The further back Rocally ground cove here is of Vigne at edge there is a drimp with the age Leptune Wedelia, dees Here the pebbleand Polyprofina. In selaces soil is account cobble beach is very Lated on top of ridge the steep rather underent, on facinous univer. but with few wats iasterary the outer pides exposed over though bearing sharpe and strages eut back almost to and the broad me no belower bases of trees.

1952 marshall 92. 33 Kwajalein atol 32 the dry spell has March 15 - Kevajalein Islet I white need herm seen in continued. The grass does not look much seaward reef flat. worse than at beginning flovers common generally. of mouth, but some 3 turnstones seen plying Findristylis seems ever island. almost dead. Beach roch beds at northern Coconut and messesselmidia and of islet on lagorn side trees transplanted from and in passage dipping marine compound to away from islet. surming pool, with quite small balls of earth on roots, are nearly dead, probably will not recover, at least unless there is rain. 34422 9 in beach with just below high tide level.

34 1952 marshall bs.

(1) Probable component commonanities of original vegetation:

vegetation: (a) Relatevely stable a "climas" communitie, 1. Cisoria forest Tall frest, \$20-30 m. high, caropy very dens except in dry season when trees may become undergrowth exist not sprouts, usually no ground cover. Tendency to form seat an surface of ground. Iswally a pure stand a almost so. Very widespred but relatively small stands. 2. Ochrosia frest -Tall frest, 20-25 m. high tall pure stands of quite so no undergrowth except third stands of Ochrosia seedling? which selder attain more than 0.5 m. except under they places in canopy. Peculia,

terrellate appearance

Rather widespread and

small to large stand.

on acrial photos.

41) 1952 marshall 95.

(3) Luciessional phenomena,

1. Messerschmidig tends

not to reproduce itself

in well-developed

mixed forest.

2. The mixed forest

basically masserselimiting

quettaida-landamus

is, in more mesophytic

habitats, a temporary

community, in which

the secondary components

may, singly or in

combination, eventually

dominate.

3. The seedlings of and anus, foulamen and root sprouts of Pisonia tolerate their own shade and that of these trees very well. These then, should under certain circumstances, be able to form relatively pure stable communities, and do. Intoia, also, can do this to some extent.

4. Ochrosig can seed

general remarks. 1952 marshall 9. 8. Scaevola, Messerschmidia, guettarda Leptums, Triumfetta Vigna commonly appear as seedlings on avery sat often sand a gravel, on breaches Many, flats, spits, etc. where they are exposed to prove salt water 9 Carrytha seems of be able to invade and parasitize anywhere except in deep shade.

- 46 1992 marshall 91.
  - (4) Processes occurring in atall soils:
    - 1. Deposition of miscellaneous calcareous materials by atom waves.
    - r. Addition of calcaneous fine material or (lime) sand by wind. This commonly deposited around regetation.
    - 3. addition of floating purise.
    - 4. Weathering of pumice.
    - 5 gradual solution of calcareous material.
    - 5 Removal of material by wind.
    - 6. Removal of material by storm
    - 7. addition of sea salts in from spray and storm wars.
    - By Billy of suspara yarticles
    - 8 addition of N. P. Ca, etc. this in guans by fish-eating birds.

general remarks ! 1 49 48 1952 Marshall Islands no Formation of Visoria part. 17 Retention of mineral matter in form hot so readily 27 Solution of Cafley by peatacids beached out in organic material-plant and animal 28 Lolution of Call Og by guano boden, humus, etc. 17 Chrishment of mineral content of soil by poor weathering products of purnice. 29 Cementing of sand under peat and quano. 30 Reduction of guano increment.
by frightening off or
destruction of sea-birds. 19. Oxidation of organic matter expressed to air natter by bacteria and 31 composting of tare puts. of two pits. n Breaking down of organic matter by crabs, millipeds, isopods, insects, smails and 23 Stirring up of surface layers by chickens and earthurms. materials to surface by 34 Kernoval of P in copra exported. 35 Burning of comment track and other dead plant materials by natives. 23 Evaporation of water from 36 Reduction of soil frames and bloom by this bruning. 24 Extraction of water by roots. by worts. 37 Loss of human by burning.

an . 1952 Marshall Is. 38 Consequent loss of fixed N. Compaction of soil by 40 Partial cementation of exposed layers.

I bunding floore material by 45 Prinding of more of mater in from not so related, washed out by name in organic material - plant and mal bodile, & compaction of said by treffix. of Pertial comentation of exposed oudstin of agani matter 19 Evaporation of water from surface. Westraction of water in by wit. or Cathorden of minerals by roots.

The state of the s LAV Francisco St. Central of gent 050 129 There of plantage the comment comporting of two gits. 28 Stillen and hours a layer by 4 MARIE NAPIE 745-1 No. William & Rhopping a 461 Tings

Lord Invelopely VI Deparition missible to the of person by wind. Removed of material the storm receive 14 15 43 to date time of the found of the sund 144 out the of the property from temporal

general ramarles 50 1952 Marshall Is. 38 Consequent loss of fixed N. 79 Compaction of soil ty 40 Partial cementation of exposed layers.

general remarks 53 1952 manhall Is.

general remarks 55 54 1952 Marshall Js.

Wotho Otall 1952 marshall Is. 59 march 19 - Enicherudo Islet 34425 discolored beach conglamerate about high tide level on seaward side, south end. 26 aunoularia on dead Oxhrosia trusk Vial 136 - inserts and spiders - or weavers in brush and woods; yellow ants and blackants from two colonies in dead Messerschmidig strong trunk, each in separate etub, but within Idm. Ego harvae, etc. go with the black only. march 19 - Einels Welet 27 Cordia subcordata Lan. starge spreading, twisted tree, many trunks, forming a thicket all by itself on low sand duries. en notting messerschmidis by in mixed surbfrest. on notting merserschmidig log in mixed scrab frest Bag. 120 - Jisseeds from Worths Sample 115 - polished shortly from Einels Islet, where, sand from the for some reason, they were south passage beach at infinitely were common than nother about high tide level.

Witho atol 61 marshall ), 1952 60 francenter is a broad & March 19 - Ombelin Islet sand dun about 4 m. Land platform, somewhat above high tide. frome uneven surface, 15-2m, alex hat. sand is friled up around covered by a single large of theisenselimiting trumbs grove of Pisonia medium sized perhaps is mitallinder growth torning tollings. Wave cutting a low elift of root sprouts of Disoniget in sand on north side, exposing This surrounded on all abundant messeschmides voli but southwest side by at to 4-5 m. from plants. Birds are a marrow belt of Messerschmidia nost, examilar existingly stained by of brack. Only other wassular plant is heptures, which from guans, but no hoticeable a small patch on seaward accumulation of guano see. side in Moreschmidia bell, now dry. thrub 2 m. tall ( others true, Pismia grandis R.Br. repto 15 m.), completely Dominant tree, this one defoliated (others in in Messerschmidia belt various stages of on layour side. development of new leaves), loaded with fruit. Sample 118 (rbags) freat and l'eat layer well developed partially cemented so sand in central part, of Pisonia frest, from place where peat is from 1 43 thick, underlain thin, has hard black surface. by partially consolidated layer of sand 1- 2" thich, this lying fample 119 - piece of a slab unloss sand. In top is a of somewhat weathered loose layer of dry leaves elmented sand lying on covered by grans stains. surface in central part Sample #116 - peat from a of Vismia frest. Possibly rather thich place. represents an older, now broken Lample # 117 - partially cemented material from under prest. sand from beneath # 116.

64

wortho atoll 1952 marshall Is. 69 march n - moremore I glet whizomes exceping, straight 34437 Caulenga urvilliana Mont. (det. Taylor 1955) well below low tide level in smooth you bottom of passage west of islet reddish Caulexpa urvilliana Mont. (det. Taylor 1955) epippingtic on Cauleypa + 34437 shrub, m. tall; flowere cream white. 39 Terminalia samoensis Rech. in sparse mired scrub-fact march 21 - south month half of kong son unnamed sand island on east reef should 2.5' my. tall, 40 Terminalia samoensis Redi one almost leaflers, occasional in sparse but covered with to closed scrub on other, same clump, rand dunes. sterile but with leave feedlings on leeward side on soft sand. shrub im. tall, 41 Luciana maritima L. 1 leaves bright green, one very small colony flower driegory. on seaward side on low sand plat densely translind 1/2 Cemphis acidula Forst. should 4 m. tall. one small but very thin leaves on lagoon dense clump side, thick fleshy en whole island one, on windward! flowers white. 43 Halimeda bleashed up on beach.

Vial # 137 - bottom layeranimals collected under
loose barb of dead stub
of messerschmidig tree,
north end of unnamed
long sand spit on east
reef.
second layer- small
beetle, boushed off
vegetation, Mohemoli Isli,
march 21.

Lample # 126 - purnise.
scattered over surface
of bare sand on mohemole I st.
(2 bags ( see p.77)

Vial # 141 - Mohemols Islet -March 21, flies collected around large log east up on beach, with masses of dead goose nech barnaceles which are possibly what attracted the flies.

Wortho atoll 1952 Marshall 91. of messenschmiden. March 22 - Worrban Islet aclump of cornet, East end surrounded at west end. by pebble a boulder beach, lagron beach in lagron. west of this, sand. Seawant beach, as seen from west, is a high steep boulder fample # 128 - drift most of the islet seeds from Medyaran motiemols and is covered by dense sand spit on east reef. Vising forest, reaching ant to souvand edge. survinded on lagon side, by a boken frings of the beach is troad 10 march 22 - Medyaron Islet and low, but very Earl passage beach, definite, actually seen from east, very long, appearing to be troop Outer third is boulder! ridges. Westward beach, middle thing about the west thing seems to be gravel inne of it develops into Third sand! a well-1-1 constricuous duner Leveloped belt of Messer-Buch blagon beach is schmidig extends along entire beach, backed ! a broad bett of open ly execut plantation! merch tricking, Bayon beachis all sand. In the eastern quettarda, occasional frant there is no very Handanus and Auriana. notiseable sand ridge. Tetween them is open In the middle the sand sand. On this we ridge along that back

(1) other atoll marshall 12. 1952 74 beach to is nother well scalled punice cleared out with and scoria pebbles scattered small with network of roots bushes the ground on under side (Hamplett) esvered by a max Here and there in this of Canadallia or Deltare great clumps Wedelia. Lange of Calophyllum. Their Calophyllum thees leaves are fround on are found of around typs or edges where much old house site and exposed to weather. elsewhere where there On the dunes to the might have been a west the semb is about house, just back the same composition from the beach remb as on the sand flats (Calophyllum is back of the beach to the mare abundant on east but with much this islet than anymis turiana. In where I have been openings Triumfetts in the marshalls is often found, balf Probably this account. smothered by sand. for the abundance I nother offenings of Calophyllum drift Feftures is common seeds on the beaches and Carrytha is common of vairous islets of wortho). both on feltures and on seway from the Cousties. Fo lagron the woody second To the west near point story becomes more the zerub becomes taller abundant, forming and denser, and may be thickets, composed of termed serul front. Pandanus, Merinda, The island is extensively Terminalia, Loulainez planted to examits, on a a little Cordia, tangled fine sandy gray brown with I gromoes a tulk and soil. The Grant of the Canavallia, and choked plantation near the lagoon

Wath atre 1952 marshall go. 77 10 pwith cornut seedling 12 March 21 - Mohemok (moberomoh) / slet of all ages. Walking Belt toward lagon is difficult. There a sand lat forming is some ground cover 2 paralled ridges of Polypodium and especially toward the Fepturus the latter west, where there are especially in small two more ridges, separated ofrenings. In thin from the two lagronward places in the plantation ones by an interval, in messetstimidia and which there is locally quettanda are very a little rubble. These at common, with ridges are generally Westeria on the ground. natives visiting this sundy. an the sand plat or islet, had gathered a and two lagronward bundle of dry l'andanus ridges, is a sparse leaves and some stand of serul of copra and turtle eggs Scaevala quettanda. as well as 3 or 4 dolzen and therselschmidia. coconut crabs. Anne much bare sand and of these had been much carrytha in the trasted and the lege bushes. ( unice (fample 126) claws tasted very gold. is scattered commonly a se large individual on this sand. forme of 1 from this batch was the frieces have patches foreseaved - in tank of of a nort network on alcoholie specimens the bottoms. otherwise collected by The rest of the island macheil (unnumbered) is worded with a The colon waried on mixed frest in most different individuals fratrather spanse. dull purple usually made up of Andrewidge predominating, but certain Quettarda, Plisonia, Cordia, mes largely light blue.

worths atol. 79 1992 Marshall 90. 78 east end near rand fearnola the parrage beach. mersenchmidis most forme Terminalia her. abundant near the The low rounded edges, the Pisonia almost mounds of Whohen dominant in center. coral perhaps betray their Three sparse patcher origin here. a little to of cocenuts are found seaward of center near the lagron of islet where the side. They showeridence soil is generally of the drought in rather subbly, low braving the recent mounds of amal dusters of nuts dwarfed pieces have piled up a abortive some mut, around not systems small on some of the of Pisoning trees, either older cliesters trees in surrounding them or The westernmost clumb on the seaward side. mostly have no nuts In a few cases the tru The firest is nother dense has fallen, leaving in center of widest the shound with the part of island where tipped up not rystem isonia is commonent adjacent, lying toward about 8-10m tall, little undergrowth or ground over the lagron either conting. wous or several feet To the west it thins array. There are examples out begins rather share. in various states messerilamida mal of preservation, one ates abundant, Pisonia less, Chving sent up big thin ground cover of sprouts from the falley Lefture with some trunks, one traving Boerhavia, Earsytha almost decayed away. especially in open and several lacking places. One can walk any not system, the feely almost injulier. mound alone surviving. more or less same on

With alog marshall b. 81 1952 80 examine these carefully around the greninsula ni iridersence whilive That sticks out of was noted. The boundaries seaward, from near are extremely stray. the logren end of the The phenomenon is no, east passage beach certainly of a much around to therend in increased surpace the west grassage beach, tenson there was is a well developed a suggestion of difference builder ridge, with in field of the water, Serubitionthy this changing but not very tangible. no difference in triste. described above. I hert attempt was made to follow several of Back of the west end these streaks to their are several channels sources, which seemed between rubble a neg to be in the mabble conglimerate flats. folas to windward, Water runs swiftly but the appearance through these from seaward. Trinally gradually where they are narrow. desappeared as the They are smuch wider source was approached. toward the islet, then (Macheil reports seeing the current sweeps small emissions of westward from each bubbles eming out of them around the of reefs in places). no I west horn of the islet.
In there the "fil streaks" origin otovious Material did not seem to have described loefore were come in from the sea, very prominent, following though this was not the direction of the wind empossible here. rather than that of the current, though they are not very different. Opportunity was taken to

Woth stolf 83 1952 - Marshall 90. 82 sand treally found Mar. 21 - Fong unnamed on these seaward flats. sand spit in last rech. anthe main sand Examined north third ridge is a mintury of this. of Leaevola merses. the shit is a long selimidia and low ridge of sand Terminalia, varying on platform that is in density from generally marked ssattered to continu. with several series our, some me of beach with that showing messen chamiding along lagon bready trees 5-6 m. ligh and mostly diffing toward 2-3 dm. thick but lagon that on seaway flat of reef conglomerate they uncommon. Where there are scattered mostly diffing reaward. busher low mounds However, one stretch & of sand have accum. of a single serie of related betweenthe treds, byling between under them. Where the reservant dipping they is continuous beds and the main scrub the sand sand ridy dipps ridge is continuously lagonward, making several feet higher, with it look as though a highest line usually stretch of the said nearest the lagon side. into the lagron. The an seaward hide is one tiny patch of furing, denuded outer flats and about one third the are generally rather way from the north end is a large and There is very little conspicuous elump fow realters themes of Pemphis acidula. gruite dense. on the solimidia and of coevole lagoon side the leaves bushes, on the thin

Woths atoll 85 1952 marshall Is. 84 moth of this spil are rather thin, on the are some amall patches seaward side very of sand on the reef thich. at 9-9:38 a.m. insects of various sorts islet with two were monon on the patches of vegetation west side of this connected by a wich clump ( see Bottle 138, Jon 24) flat. The vegetation while none were seen of both halves is space on the sunny side. scrub and there is one the Cemphi, was coremut tree in south flowering. ball (Leen mly from boat) between this and the The sand, where there is no vegetation tends scrith and of Wotho blet to be flat on top It is is a small bar on fine, white to pinkish. a rock platform. From and the ourface may a brat try bushes are be beld firm by an visible onthis. incipient algal and. Were is a loose layer of 2 March 19 - Wortho Scet lead leaves under the the grass and, especially, bushes. Here and there are thin patches of Leptons show strongly the in the bushy regetation, effect of the drought. more in open! ly being from and there is a small group partly dued up. of ragged count heir Geach work, dipping at with end, and lagronward, extends for a very frew ragged indi. some distance along south widdlast trees there and end of laguon beach! It is fitted there along the islet. with wunded edger, probably From the lagon the abraded by wave - washes vegetation all blong seems mothered midia 2-3 times as high Toward the south end

Wortho I slet 87 1952 marshall Is 86 4 mostly of messerschmide perhaps 200-300 m. with some kerevola, north of point, there a few commut, on lagron is an abrupt change in the beight of the extsmut trees! those to the 5 Erotjeman, Uditj south being lower. and Jabenau Islats -The south print has seen only from the only mixed serub and, .. boat in lagoonback from from mined These are all wooded scrub forest. possibly with l'isonia, as defolitation is very March 18 - South of the noticeable, but from long sand sprit and appearance on deval photos to the lee of it, vilstreales rather mired. The were abserved, not ends and in case of very numerous, but a alemais, the seaward few of them very distinct. projection tapersoff to Those to leeward of scrib. On Jakatiendan the sand spit would mar neil reports a And Strate of the Strate of th seem to preclude The single l'emphis bash idea that oil was coming on extreme and only over the neef from the seaward projection. ofren sea. also common on Lever Russvaa Islet - seen only the rest of the acoust being Messerschmitis White of a strains and heavorla. This from boat in lagurn. projection is bare rock. On lagron side appear On each of these to be high rock beds, islets there it a small horthand hard possibly underent by toatch of coronuts or lagoon waves, extending the lagger side. above all but most entrem high tides Lagron side of Evotjeman mixed Vegetation is a sparse forest of Piania, Messerschmidia serub and serub frest

woth atall 89 1992 Marshall do. 88 1 replaced by a vigorous 1 March 19 - Enicherudo . layer of young telinosing trees. The entire lagron freach except for a In the center at least few short stretcher, is of the south end, is a lined by lagoonward solid frest of Ochrosia. dipping beach - roch, and In all of this frest sticks above this, great slabs of blackened by Xylania beach with are piled are common. Ratione common. up to the top of the beach. the soil in the frest is The unusually strong frine and blackish, getter lagoon waver are with varying quails dissolving the beach rock admixture of fine mother. along bedding planes, cracks, Toward the seaward etc. the cracks apparently beach it become more result of undercutting sandy and has in along bedding planes. the surface boulders a slight ridge is strewn into the firest. developed here and there the south and i along lagron beach, but mixed frest similar to it is not conspicuous. Untdescribed for the along the entire lagran lagorn beach, with also beach, except for a short some Canavalia Tangles stretch of coronals with in it. This peters out Acaevala between them, into mixed serve is a mixed frest of on the sandy extreme quellanda, merreradumidia, south end. Vandanus, Pisonia Ochrosia The entire seaward beauty and Scaevola, tangled is gravel, resting on flat with Aeddin and phonoen neel conglomerate. along it per-capial. Her and there is a belt of Misserschmidia are amall patches of front with a hearvala Leptures. fringe. Vinward Pisonia Becomes dominant, but is being

Wotho along 91 1952 Marshall 90 90 Westward the plantation Kabben Islet (ctd. from p. 105) gradually changes to We plantation, except mixed scrub frest with immediately around the a few cornerty. On the old but, is clothed with west end, believed the low thickets near the lagron duner there is offen these thickets are of Pandaws, rand with a scattered Scarvola and Morinda quettarda Luciana, with tangled with Wedelia. around the but where the thickets have been exattered trees of Poindanus cleared, a thin tangled and small coronlet trees. mat of Wedelia even the On the sand is a welldeveloped algal count. West of the center of the a belt of serub mostly low lagon beach, terring In Ja becomes a component of the plantation thickets, meny westward, the stand of rom here westward, the creation the beach in the region of the beach in the on the seaward end, becoming mixed with Merrendinde and quettaida, and taller, Toward lagron, occupies the ridge of broken enal. Added this is Morinda and Pandahus a scrub fragest of Messe. schmidia, l'andonus Visonia, Guettarda, Soulawa dominate the thickets and with a little scarves and The whole becomes choked Terminalia. Focally theo with young counts of is a ground cover of nather wilted Polyprodium Itill further back the and of forlames seedlings, coconity become space. these now mostly dead. They are farge clumps a few saplings of the trees beumer common. weren and a tangle of Wedelia

Withy actory 97 marchall Is. 96 1997 the east crast groups of the low rounded scrub belt sendia mounds of broken and narrow hook around previously described the south point. This One old Messerschmidia is bagked by mixed had fallen, laced off. freed, the transition it was about 45 m. tall. Being gradual guettarda a few of the Ochrosia and Messerolmidia here are old, but there replacing more and is mainly a stratum more of the Acaerola, of young ones about 10 m. along the bouldes beach tall. The undergrowth of the southwest crast is of young betring If the south peninsula softling, and a few mixed fromest corner young Handanus. right to the top of the Mostliway mean bepch. It is shalleng center of this part of the of Pismia presentimidia, is a sparse quetterda and Endis. stand of coconuts choked with quettanda. Inland on the boal boulder flat Pisonia adhiran Pandanus becomes dominant in etc. with seedlings of this mixed frest, some There and of cocoduts of the trees being enormous. making walking difficult. Unland from these is a Then there is a section large frening on the of scrub firest of quettards, rubble flat filled Loulannes Pisonis, and with a deep mat of Vandanus. Wedelia, In the inner Metween this and the edge of this is a grove of east end of the lagon cotonuty. beach is more choked the boulder and rubble coronit plantation. flat along this coast is 100-200 m. wide. along the central part

Worths atol. Eneman 99 Marshall Is. 98 1962 March 20 - Ecrela Islet of the southwest side the surface of this Is a wide sand flat with very sparse along the lagran beach scrub, much ofren is a broad dune ridge sand heavol predminent from 2 to 4 m. above high In the mixed frest tide level. The seaway on the subble and part is lower. boulder flat there is On top of a leigh rounded little undergrowth dune on the south except occasional end is an scattered seedlings of the confinent large boulder, about trees and illand, of 2.9 - 3 m. above high tide. activing which is not On this done there as a large tree gut is is a grove of Pinnia, actively invaling. surrounded by More. The Cordias, abundant Letimidia and Terminalia. near the beach are Both the Visma and enumous low spreading the Terminalia were trees with immense practically leafelers. granted trunks and month of this a large great writhing herizante Cordia forms a broad Granches just iff the low tangled thicket. ground. Penetration In the center are three difficult. patcher of cozonis the middle one back from the beach. Between there is a fritely of Och . Here thehe and, for a what distance. tros dune ridges, brut they are lower than at the two ends. The west and parts of

Wolls atolf 1952 marshall 20. 101 100 the sunt and center flift seeds are unerually abundant are covered by a mixed on this island. front of merserelining, The sand at about high tide level, and quettanda. The edger the beach sandstone of this and sparser beneath it are curiously shot are tangled with polished. (sample 915, 1.58). Wedelia. Some of the Jaminalia has lost its leaves some has not. The lower ground back of the dutine ridge is covered by uneven scrub frest, mainly Messerschmidia, guetterde, and lisonia, of the varying debity. loward the seaward on the east and whether ends, this thins out to a sparse serul of fearvola with some Mossenshmidia and some guetterde. Merch bare sand between the rounded bushes. a broad series of beach - noth diffing seaward lines the southeast beach some beachirch, ales, on the south side; and along The scrittmest risk

Wortho atol 103 marshall Is. 102 19 rown booky -Wotho Burds:-One seen several In general friends ternes around Biggs are abundant on the I slet. an immature smaller islets, relating me seen at sea west Inbelim I neadult near at scarce on the larger ones. Mesting is mostly seen a the smaller inlets. Terms Common moddy as resual, are the most Leen in small or abundant birds. moderate mumber over lagron and at sea, trigate birds a frew on the larger a hundred roost on Ombelin Islet. During islets. Many on Evicherudo Eslet! Many birds and revent the bot part of the day mests reenon lines, they are mainly resting, with clowny young. toward evening they One bird seared up her soar in numbers that had difficulty above this and other flying because it islets or out over the sea. had Pisonia fruits several individuals stuck over its feathers. some also seen ver Bigen Lalex. Leveral nexts on Bigen Islet. Many birds Terns - Both moddies, seen on the long sand fraing terms, and rarely spit on the east reef. tern may be found some birds and one nest on motremos, this fishing trogether, flying low in a greetlanda treg. existedly over schools Commonly seen, in Littler in lagory on out middle of day, in groups on bearles. bull the nodder rest in the

Wortho atolo Marshall 21. 107 1952 106 Crested tern -Wandering tattler been one a two at a Rare bere, possibly time usually on outer only one or tros grains. beach or reef flats. I me seen at rea west in passage hearbei, of atall Tows seen on in most islets. Often Imbelia tolet. in company of proven a turnstoner, or more rarely curlews. Cacifric golden Plover. /unstone feen in small number In small flower of generally, on inner two to frive on most and outer beaches, islets, on breaches or and in interior wherever reef plats, Often enditions are at all with plover and ofren on most isless. tattles. Often with turnstoner. tattlers, or curlens.

1952 marshalf 2s. Wotho atolo 19 Bristle-thighed curlew -Seen ringly, in frain, or as many as three in four on beacher and reef plats of most islets. Here of the fairly tame, allowing one to approach to within \$15 or 20 m. before flying. Whimbrel - Rave . One seen on Rivels belet

any.

Lac

. .

5 09:30

Jan. 5 Dep fac ataly 20:30 an. Kevaj 08:15 Defr. Kertaj. 110:00 an Ujelany " 10:00 Def. Ujelang .. 16:30 ar. Woths .. 09:00 Def. Woths .. 0230 an Ujas .. 09:15 Defo. Ujas .. 21:30 an Kwaj 10:00 Delp. Kuraj . mar. 1 07:30 an. Ujas' 18:30 Defr Ujas 20:00 . an bestaj .. 09:30 Del Kuraj .. 19:00 an Woths .. 13 10:00 Dels. Wotho .. 07:30 23 30:30 an. Bilkar " Def. Bilsan .. 18:30 an. Tangi. 25 9:00 25 27:10 Del. Tamqi an. Kwaj .. 10:30 Def. Kuraj 31 3:15 10.36 an gram t 2 8:10 apr. Dep. Guam J. 5:00 an. Tolays

March 24 - Bilsan atol from ship at from 14 tg/2 mile. Pressage at 10:30 and low tide, entire reef showing edges of, passage out of water, conspicuously underent. Atrong current flowing out + 2000 r from of penyan boat go engine just held boat in place.

at 3:30 pm. half tide monoticeable current,
but small sevells
across month of
passage cause tide-rip
and considerable turbulence,
suggesting some current.
Wind waves from inside
may have caused some
of the turbulence.

at 6:30 pm. - high Tideor going down somewhat. tremendows current eming out making a walk a comple off hundred yards out to sea. Great swells breaking across. Colween swells the channel like a mill race.

Karages Bilsan etab 113 Leeward reef tran numerous boulder strenn over it. Windward reef, north of islets, tras a few. north part of reef flat very wed, a sand bar on inner Jalverulsku Islet -Covered by tall l'esonia frest, trees partly defoliated. a second leger 43 - 3/4 height of Canopy, much green, unidentified, slopes off to windwarf into semb. May also be Pismig. a sparse fringt of messerselmidia alma both inner and outer beacher. One greener clump possibly Guettarda. Between Jabreruhbu and arumenici islets a mae ales continuous sand and rubble flat a wall platform of this q very few young messer114 1952 marshall 2s.

arumenia Islet - on northers
projection a sparse stand
front of islet a lisonia
fact with sparse fringe
of Messerschmidia around
lages forme small sand

Jaboerå Islet - an Junvegetsted sand boar held by beach roch on seaward side.

Wilson Wet: mostly tall l'isonia frest, with a belt of very spanse saule around it especially an north and south ends. Serve mostly messerschmidia, a very few braevols bushes. Severy comment trees in outy part, a large grove as of them on inner Ind, between frest and sunt feelt. Dunes on south side. On south side some enous boulders on beach.

"Oil Strents" mumerous to lee of south half of stoll-rather brailey and broken affect bet into mile, but some still fairly string.

Pohala (Tangi) atoll 116 1992 Marshall 9s. all of the regetated March 25 - Cruised ielets have boulder , around a atolf, sometimes coll reavant beaches within 14 mile. material becoming fine southwestward. Vial 140 - pararitic insects Large boulder strewn taken off of Lula leurogaster on reef and beach and caught on fishline 1/4 to 12 mile up on islands. off Ramone Islet. Three northern most islets have many space Some grayish serub of messes who messeschmidlia, Meanthe morthern end of the leeward neep, innumerable birds. mostly opposite a ver Vegetation on seaward reentrant angle in side of Libylla Islat the reef, and a group of not so spare mainly great boulders in the of low Messerschmidia dendo reef, 2 m. a more high some scattered feavola. apheoring one, at least, several times On tolande tolet borne as long, tending to be areas where passages mushoon shaped because have filled, or perhaps of a prominent my. The regetation has been Anne are tipped over on swept off by storms, windward side many colonization is taking small ones. place. On Pohale I slet there "dil streats" such as is more fraevola. described for you, Worths. also some taller trees Bihan, are conspicuous here probably all on leeward side of leaward Messesselymidia, but neighborhood of the passage. frozzibly a frew l'isonia. Extend for several miles, bare of vegetation. morely becoming very diffrured cobbles locally gravel great !

Polrak (Taongi) atol 119 marshall 21. 1952 Burds -The passage, and One blade - footed low tide, much like albatross seen for by a mill-race. Water Ch. Frey, on arrival in morning. rushing out, current showing well out from a large shearwater mouth. observed in floch at almost high tide at north point, sitting not much current. on water, and in num-However, west swell her at various points Mad zet in and beahers flying may be stretched across mouth. M white Inthite - faced steamate, On day without ream but identity not earlain swell the would be Dark sorty-brown above, time to enter. Even with Real white beneath but swell periods of whork with wing primaries quiet observed as much beals. and secondaries, front In reighborhood (the min radio) edge of wing and Tail Black fine with mouth of passage a black smudged peculiar lighter blue somewhat beheatly also. colls color, suggesting effect of colletidal Ca Co; asmiller, but still in marl prools. Possibly large, black petrel ffeno Ca Coz rediment ashearwater seen not coming out of lagron. identified, flying close to waves on windows side in company with the other one. bird at a this gotherny This.

flesh at the 1952 Marghallatie 121 120 Kwayalainlatoll all three bookies plants seen but not collected. present, The Eroun Terminalia catalipa in large numbers, the Fedilanthus tillymaloists immatting ones, especially, gossifium following the strip Brugainvilles 1 and diving at trolling Pitheedlobium dules lures, several getting Coccolobis moipers caregist. (collected) I senderanthemun at feurpurer. pardites of one. Cinum pedunculatum They but origorously) Blub faced and red + footed in smalley number observed flyings fishing. forty terms common flying around, sometime, bishing. a few fairy ans Klying Two white reef from to ship then flew back. One of these from near northern tip of alole. Fairy term, sooly terms born boobies, blue fracel booking and frigate budy seen festing trather.

march 31- gream -much of front on plateau at north and looks very decadentlarge trees drying back. facts on terraces below cliff-top on east side, n. e. of mt. Lanta Rosa and on north side, at Inlague, are green and bleathy-looking. around Mt. Lanta Rosa are areas, just inside contact of volcanies with limestone, are wet depressions with standing water in rainy season, and places where water disapplans under the limestone. In gruany just north east a east of anderson Field prieces of limestone showing numerous Halimeda fragments were Toward sea from this querry is a very promuned rum is wall at top of cliff, perhaps 6-8 m high. I have has been

blasted through this, giving

terraces below. In the face

an excellent view of the

124 1952 marianas l. a delvis strongly con taminated by limestone. good stands of Cananga odnata observed on limetine slopes. Extensing burning observed in Merizo area. Where not burned, Casuaries cummon on sund-grass slopes. Rochs demuded by 1949 typhon, south of marajan, fairly well coveled by low Vemplis. Breadfred trees that were in Jan. 1950, demuded of leaves and small branches, more book almost monal again. Cornert groves east of Merizo show very few effects of typhon, and mangrove swamps show more at all, except lack of large trees. Not examined very carefully. In coronat groves there is now considerable undergrowth and well grown banana planting. In general, diving away? coast was, if one did not know there had been a typewon and did not look especially for endences.

gram - Uracas 125

one might not valize
there had been one.
Pading is common on bottom
at moderate depths of south
end - up to 10 m. Considerable
other algal growth at such
depths. No Halimeda seen.
Large "vegetation" of soft
corals in & 1-2 m. of writer
in "lagoon at send.

Koclachromes, taken by Brookhart, of Uracar just after emption ein early 1952, show no regetation on the come or the lava flows. On the two old remnants of a former caldera that still exist at the edge. There is green vegetation - possibly gress a heavola. Brookhant conforms that there was not a but of green visible anywhere else on island and that this vegetation was of very low stature.

Iwo fina 127 1952 Volcano do 126 Weeds observed immediately april 2 - around air freld around our base: Weedy ground of a gellowish \* Cynode dactylon from ask a tipp inmediale \* Tridas procumbens <+\* surrounding dir base and Leucalna glanca field on rough ground \* Lida whombipolia and that not affected by Crotalaria mucrenata traffice is a dense scrub Holanum nigrum of Leucaena glanca with + Ricinus communis occasional bushes of Supholia hirta Trema orientali, v. argenter. Playlanthur This scrub is from one to three Verning cineres or from m. tell, Occasional \* Chloris inflata plants of acaria confusa init. forehur of. Isthmus of Black ash, mostly Cyperus javanieus grassland with buncher Digitaria pruviens ! of a large grass - miseanthus?; Enghoring thymitalia and serul in weigh places, T Oxalis comiculata! bright green so not that or noted above some bare ash or alle. \* Cuphorbia heterophylla Lurabachi has patches Emilia javanica Commeting sy. of sent, probably Leucaina. fratcher of bare ask Canavallia sp. \* achypanthes aspera? V Cassia les chancultians V Ticholaena repens agave sisakana + Phyllanthus uninaria V Cenchrus sphinata flowers bright red. 34444 Emilia javanica Burm FRob. occasional around air base 45 Phyllanthus urinaria rare around airbase

april 20 - Wahe I slet

Vial 141 - ant, (folenopsis) and cochined scale, on noting crowns of Setaria verticillata.

Vial 142 - dermestide from a dead and dried term a young term in prinficather stage.

Black ant i for the plant person on flow in bottel.

Vial 143 - Odonate lawa, and gambusia (mosquits fish) from brachish water in bornb crater.

Vial 144 - skink (ligard) conglet a ground in open place, frainly common.

Vial 145 - flies caught around garbage dump, grasshoppers in open grassy places, spiden eround buildings, laws in grassy shot.

M. Frederick Achulty 3919 Waisley and. Honolulu 55, T. H. (ph. 77086) (present 90 CAA Wake ).)

Livisin Territarial Board of Health T.H.

More, temporarily, running pest control worth in Wake I for CAA

Started - Feb. 14, 1951.

trock 1 month to get started.

poisoned nats
emptied out mosquito
breeding places.

cleaned up garbage pits

april 20 - The entire atall has been aftered from the picture given by Bryan who made his observations in The summer of 1923. Only in about three sports are there any noticeable number of treas that were seem to date from pre-1941 time. One of these is on the north leg of Wake Islet, west of the fireing area. Here are large Pisonia trees, with some admixtue of Cordia, little undergrowth. The trees show some "windshear" effect, and are only 3-10 m. tall. Trunks my to server of the . 8dm. diameter of base but mostly much smaller. The soil is of coral pebbles best locally the top layer show an accumulation of black peaty material. which however, is quite friable. This area was relatively little ton up by military activities. On the eastern side of the lugron, between the housing area and the Pan am compound are some areas of messenselmidig that look as though they

are remnants of the pre was frest. The remaining such area is on the southwest leg of the island, just esist of the Trans Ocean compound, when there is a small area of large Messesselmidia trees which stand out when observed from the air. Just east and lagoonward from this is some large Pemphis that was probably a part of the per original stand mentioned by Bryan. around the northeast corner of the largoon are still the saline flet, of frine sand, mentioned by Bryan with Lesuvium mats and especially inward, low tangles of Vemphis. This Pemphis is rather amall and looks young, but in presilly remains from the stand described by Bryon. If so, it has been altered somewhat, ofrened up in places, grown up much taller, in placer, Than what Bryan refints.

136 1952 Wake Island Fret Tolet april 20-21 - Wake Island coral gravel and sandy soil 34446 amaranthus graces vividis 1. around abandoned paparere garden 47 Pluchea ordnata dominant plant forming serve in deruded or openhaus 48 Micotiang talracum 1. your around abandoned Johanese garden 49 Johnsey baltatas L. nore around abandoned 50 Cynodon? garden some common locally around old paparon garden, mosty dead at this time of year 5/ abutily Indicum (1.) swhit one plant near old Japaners grander. dubius Mart. 52 amaranthus tiroloch. rare around old paparese garda 53 Brechavig differesa L. common generally, especially in open places (with 34434) 54 Brechavia in open places ( with 34453) 55 Emphobia prostrata Ait. rare in open gravel 36 Catharanthus weren (L.) Don rare in open places

showling herb

should a mender,

fls. pale lanender,

herb 1.5' m, tall; limb

of corolla bright pinh.

showly on tall, forder flowers or ange, fooded by 10 am. not spiny prostrate, mat forming, stems red, leaves dull green above, white beneath, flowers prink. I stems green, leaves green above, white beneath, flowers white beneath, flowers white beneath, between white. brostrate, purplish.

140 1952 Wake Island

34470 Setaria verticillata (1.) Breaux.

very local, one patch in
second growth.

7 71 Corrolobis uvifera L.

6 78 Pisonia grandis R.Br.

common generally, dominant
locally

3 73 I formved per-capage (1.) Roth
patcher breakly

7 74 Frepholia heterophylla 1. very common everywhere in opening, and bas places.

3 75 Enteromorphy antermittent assignification, varying with tides, but inland.

3 76 Tireachne insularis (L.) Nees

3 77 Cenchrus echinatus i.

3 78 Finhistylis cymosa 8. 3r. common generally, especially ? in open places.

3 79 alga forman on brachish pools in book cratery.

4 80 Cordia subcordata Ram. subdominant braken Pisonia forest

shoul 3 m. tall, spreading and tangled.

and try, wood very soft: staminate blowers and fruits on same tree prostrate, extensive,

forming mater, flowers

dense tufts.

purply.

forming a dense floating

tree 4 m. tall (others larges }.

trunks up to i dm a mae thick).

flowers bright crange.

142 1952 Whe Island
34431 Portulasa oldracea L.
3 common generally in
open disturbed place
4 32 Eleusine indica (b.) gaerta.
common generally browny
fieldings
3 93 Sonshus draces L.
rare around dwellings.

verging between 1-3 m. tall, no large trunks seen. The Cemplis seems to grow on either fring silty rand or on broker coral wich. This belt varies in with up to 300m. wide, but mostly much narrows, and is present pretty much around the lagory show of Wake Islet. On such short examination it is hard to evaluate the Over the manger grants the area of all three islets the negetation was evidently almost completely destroyed. Ditches, tank trape, platforms, mines buildings, gun emplacements, resetments. and underground installations are almost everywhere, with repuse of al

Endra from 1 - 2 m. tall and very dense, is common locally this is probably that they general Messesschmidis regetation is seemed growth is obvious from the lack of trunks me than I don thick and the fast that this sent grows on embandements and priles of conf from the man. In open places, generally Pluches odnala forme a semby 1-2 m. tall. This is generally healthy, but in places is conspirmously delocatic In denuded areas Cenchins extrinatus is common, and in man of them Enphinting heterphylla is abundant at this season mostly completely dried my. Very delastic locally way. While Bryan moled only one patch of pronoca fres. caprae and one pately of gossypun, both are eveally emma now on many parts of Walre House some often the latter exp. around the del suplane rambe.

The Japanese must have planted the possypium, as it occurs consistently and their old installations

In the intervals between the trees Brenhaving of two forms is extremely common, also an erest, green from of Portulara lutea. Portular deraces is commoner near installations.

Messerselmidia is said to be hilled by salt water on its noots from very high tides - acc. my. Brown they is an area of 3 acres when it was hilled and has not shown signs of coming back, anyet. home patcher of Cynodon dailyla exist on the island. Thirty more was planty last fall but few needs sprouted, asther was little rain from desember to april. Werselselmidia umany places looks dried up. l'isonia and Kordia are more or less defotiated, and the Cooling sometimes dead at the tips.

Here and there, in excan ations and bromb craters, is standing of bracking water, me of the ponds being an acre a more is extent and breatly called the Rake. These ponds and Hancheria - like alga wally top, and plourishing population of mosquito fish. There are also dragon-fly larvae. The water taste, perceptibly brachish. What so many fish live on, since the mosquite propulation has been reduced is not clear. The fish were planted about 8 months ago by Mr. Schulty, from a stock introduced from Hawaii about 4 years ago ento a concrete reservoir on Peale ! by fuitono, a Samoan now with learl Harbon Police Dept. The fish are still numerous in this reservour. There is one plant of richhorning crassifies left in this reservoir, tot out of a formerly larger stand. they have been taken by people I plant in organia, etc. a limnological study would be of interest.

Until a year ago there were said to be untold numbers of rats felies, and mosqueitaer (one Bulez, two aeder of. ) on the island. Mr. Frederick Achietty. 3919 Waralas ans. Honolulass, T.H. (present 40 CAA, Wale 1.) in 7 cb, 1951 undertook pect control operations. Mosquite breeding places ever eliminated a stockel with mosquito fish, garbage and other fly breeding material was eliminated, garbage dumps regularly burned, Rolled outs poisoned with Wolferan (?) was used in a systematic campaign against the nats. The success of this many the measured by the fract that in 2/2 days covering the island with Mr Schulty me nat was seen no mosquitos and only a very few flies. In his weekly examination of prisoned baits, in covered train (like miniature gumset buts) he finds less than 5 90 trucked by rats. Feeding tests by Schultz showed that the nati commonly eat the young fruits and fleshy

fruiting bracts of pornova tuba. He friends this quite consistent with the fact that rate were usually very numerous in tangle, and thickets and mation this plant It would also supply water of which there was none available naturally Except after rains before the war. the system of baiting was to establish franallel lines of baits across the want, series of them, examining and re-baiting every day, till they were not disturbed much any more, then to move the series farther apart, doing the same thing over repeatedly, till the ends of the island were reached, then maintaining a few lines of baits as chester examing there every week. as long arthe I of baits visited is below 10% the rats are considered anti-fled.

Birds seen on Wake a few common moddies, flying, one next but not sure of occupied. a large nothery of footy telm (? back and wings very black, crown black, frehead with a white V, bill & feet black, under- parts white. young souty- from, spechled with white on back, south gray beneath, when fully feathered. In fin feather stage light gray drung beneath, sorty from or back and side,) on layour side of mostly book of while talex. young invarious stages, no eggs seen. Many fregate birds seen principally of an old pier on Peale Islet in lagron. Oscasional fraing terms flying. love bookies, meeting on Peale Islet, in trees. If not let. One tattles on lagoon beach. Two planers seen, but Mr. februlty says there were many only a day earlier.

Dogs o cats both seen, domestic. gardens seem mortly unsuccessful when just planted in the ground. (see p. 130). around any old Japanen ganden site amaranthus vindi a tricolor(!) pornova batatas and niestiang tabacum The method of gardening used most successfully is to frame up top-soil about to deep, survey by 1x wards. Then water this well, shade it with Leafy tranches of messen selimidia. In this sort of arrangement, at Franslein Empound tornatores, lettuce. Proceoli prassley, dill onions, beans, were growing around this compound were small plants of tiens caries, Chesperia populnes tisus sp., carvains egrisetifolia, Sorghum vilegase var. technicum (homens)

Catharanthy rosery, Terminaly

catappa, Cuptorbis pulchering

Cucurbita maximy ( flat

white summer squash).

In pot, were Codiaeum variegatum Chrysophyllus caimit? Bauhinia sh. Mangifera indica. Ensalyhtus citriodora. Ensalyhtus citriodora. Ensalyhtus citriodora. Easanasea samon quaiaum? Capsurum prutessens, Zea may (reached matrinty but very spindly, with abotive ears, grown in a drum of soil Cusumber at least flowers. Carried papays gets several feet tall, then dies.

around houses in forwing ones - onecoronat with trunk non, call; are Pandamus tectorius of m pots at least two species of Kalanshoe, Bryophyllum pinnatum, fansevien zeylanium (?), Echeveria sp.

The soils are generally coral wobble, with here and there a slight and coloning by humans, under hisonia grave a black friable soil on the coral nubble, In one sport, inte of old paparers garden a small area of

anne arundel Co. 158 1992 maryland 159 June 1 - Head of Broad Creck 34490 Peltandra virginica mne a care erect, clump to clump. 34490-(3)

34490-(3)

anne arundel Go. 158 1952 maryland 159 June 1 - Head of Broad Creck, 34490 Peltandra virginica clumps, leaf, blader mue a cass erect, quite variable from clump to clump.

Virginia 161 1952 Fairfax Co. 160 June 6 - Holmes Run, just above Lake Barnoft area cleared for sewer 10 years ago with thickets along creek branks, woods bottom-land. Trep 10 m. tall, partially 34491 fraxiones pennsylvanica MARSH. dead from flooding. in bottom-land flooded by low dam in creek 4 92 Francis americana C. tree 10 m. talf, 2.5° dm. 4 93 Betula nigra thick back pinkish, Thickets along creck bank to straggy; sterile leaves glavicous beneath; sterily. should am. tall, branche, 4 94 Physocarpus opulifolius thickets along creek bank arching: fruits dull culms weatrly 2 95 Carex arching. 6 96 Penstemon in open area erect, plowers dull purplish white.

G. L. gressitt coll. 167 Plants of Kayangel Atall 46 m Dec. 16/52 Ngariungs Isleh tallow tree 1 Pisomia grandis R. Br. 2 Scavola frutescens (Mill.) Krause 3 Messerschmidia argentia (L.f.) Johnst. 4 Barringtonia asiatica (L.) Kung taller tree 5 Pisoma grandes R. Br. 6 Thominalia samolusis Rech. Jarasitic on 20 8 7 Carry the filifornis L. (Ke. s. She.) 9 Euphorbia chaminonis, Boin. Dec. 16. Ngajangel Tolet (nain isht) (1) 9 Crataera speciosa Volla. your grathe 10 Epipremum pinnatum (L.) Engl. & Il Vigna marina (Burm.) Merrill 12 Asplenium nidus L. 13 Nephrolepis hirontula (Forst.) Prol Tree 10 m. high 14 Fians of senfftiana Warl. 15 Pipturus argenteus (Fort.) Widd. yang gasth? 16 Epipum num pinnatum (L.) Engl. ? 17 Ochosia apositifolia (Lauro ) M. Ihumo 18 Pondamus tectorius Park. Acalypha amentacea var. carolinensis 20 Clerodendrum speciosissimum Van geert Vote 21 Elenya mederalis Jand. ex Wedd. 23 Portulaça samoensis v. Poelon War Andryanthan organic Canavalia micro cays C.C.) Piper 25 Elatosterna calcareum Men. ? 26 Asystasia blumei my nees 27 Phyllantis ninni L.

171 170 Palau G. C. granitt coll. Dec. 1952 44 8m Ponapea palavensis Kanch.

5045 8M Pondams aiminihensis Mart. also common in hill jungle on Babelthuap Bag samples & soil samples.

# 112 - p. 24 111-12

113 - p. 58

116 - p. 60

117 - p. 60

117 - p. 60

117 - p. 66

120 - p. 59

121 - p. 66

125 - p. 66

125 - p. 66

127 - p. 70

127 - p. 74

128 - p. 73

129 - p. 152

# 133 - 1.24 134 - 1.56 135 - 1.56 137 - 1.70 138 - 1.71 139 - 1.65 140 - 1.10 141 - 1.132 142 - 1.132 144 - 1.132 145 - 1.132 

